

REMARKS

Entry of this amendment in accordance with the provisions of 37 CFR § 1.116, and reconsideration and allowance of this application, as amended, is respectfully requested.

This amendment is in response to the Final Office Action dated April 28, 2003. Appreciation is expressed to the Examiner for the allowance of claims 4-9 and 13-18.

By the present amendment, typographical errors in claim 1 and 2 have been corrected. Specifically, both of claims 1 and 2 have been amended to correct inadvertent omissions which were discovered in the March 26, 2003 amendment upon further review thereof. In particular, at the end of claim 1 in the March 26, 2003 Amendment, it was noted that a comma had improperly been inserted between "sub-common" and "data lines" at the end of claim 1. Therefore, this comma has been deleted. Otherwise, amended claim 1 presented in this amendment is identical to claim 1 presented in the March 26, 2003 amendment. Similarly, in claim 2, it was noted that the word "memory", found in the original claim 2, was missing from the version of claim 2 submitted with the March 26, 2003 amendment. Accordingly, in the present amendment, this word "memory" has been added into line 1 of the claim so that it properly includes the original phraseology of patent claim 2.

Entry of this amendment is respectfully requested, notwithstanding the finality of the Office Action. Specifically, this amendment is directed only to correcting inadvertent typographical errors, and, as such, should require no further search or substantial consideration on the part of the Examiner.

With regard to the statements made on page 2 of the Office Action in paragraph 3 concerning obtaining the benefit of priority based on the priority papers filed in parent application serial number 08/574,104, a Claim for Priority is provided herewith. This claim for priority sets forth the Applicants' claim for priority based on

JP 6-334950, filed in Japan on December 20, 1994. The Claim for Priority also notes that the priority document itself was filed in the original patent application serial number 08/574,104. Accordingly, granting of the Claim for Priority under 35 U.S.C. § 119 is respectfully requested.

Before discussing the merits of the case, a brief review of the invention defined by the rejected claims will be set forth.

Briefly, the present invention is directed to an improved semiconductor memory which combines a layered word line structure (which includes main word lines and sub-word lines) and a layered data line structure (including main-common data lines, sub-common data lines and data lines). More specifically, the present invention, as defined by rejected claims 1-3, 10-12 and 19, provides such a combined layered word line structure and layered data line structure in which the sub-common data lines extend in the same first direction as the main word lines and the sub-word lines. As such, the sub-common data lines that connect the data lines to the main-common data lines are parallel to the word lines and sub-word lines rather than being parallel to the data lines (as opposed to the case of the primary cited reference to Ikeda, USP 6,307,217, in which the data lines and the sub-common data lines are, in fact, parallel to one another). It is noted that this arrangement also makes the main word lines and main data lines perpendicular to one another, contrary to the Ikeda document in which the main word line and the main data line are parallel to one another.

The purpose of the present invention is to particularly provide an improved arrangement for such memories where both the word lines structure and the data structure are layered. As noted on column 2, lines 30 et seq. of the patent specification for the U.S. patent 5,966,341 to which the present reissue application is directed:

"In short, the conventionally fabricated dynamic RAMS adopt layered structures only partially and sporadically. A comprehensive layered structure covering all word lines, bit lines and common bit lines and common I/O lines has yet to be implemented. The fact that full benefits of the layered structure have yet to be practically appreciated discourages general attempts to boost the operating speed of dynamic RAMs, to enlarge their scale and to reduce their costs.

It is therefore an object of the present invention to provide an dynamic RAM taking full advantage of the benefits of the layered structure so that the semiconductor memory will be enhanced and operating speed, boosted in the degree of circuit integration and lowered in manufacturing costs."

Thus, the particular feature of the present invention in selecting the directions of the layout of each of the claimed main word lines, sub-word lines, data lines, sub-common data lines and main-common data lines is extremely important in successfully implementing a combined layered word line structure and layered data line structure.

In the Office Action, Ikeda is combined with a secondary reference to Sawada (USP 5,471,430) in an attempt to meet the limitations of the present rejected claims 1-3, 10-12 and 19. Regarding this, Ikeda provides an attempt to combine a layered word line structure with a layered data line structure. However, as actually recognized in the Office Action, the structure of Ikeda is quite different than that of the claim structure. Specifically, referring to Fig. 3 in Ikeda, it can be seen that the lines from the sense amplifier SA (which, according to the Office Action, correspond to the claimed sub-common data lines) have a direction which is different than the direction called for the sub-common data lines in the present claims 1-3, 10-12 and 19. In particular, as noted above, the sub-common data lines extend in the same direction as the main word line and the sub word line. This is completely different than the arrangement shown in Ikeda in which the sub-common data lines extending

from the sense amplifier SA are clearly parallel to the data lines DL and perpendicular to the main word lines and the sub word lines.

In addition, in Ikeda, the data bus DL does not correspond to the claimed main-common data lines. This is recognized in the Office Action, for example, in the statement on page 4, that:

"However, Ikeda et al. do not disclose that each of said pairs of sub-common data lines extends in said first direction through said third regions arranged along said first direction; and each of said pairs of main-common data lines extends in second direction through one or more of second regions arranged along said second direction."

However, the Office Action attempts to remedy this recognized shortcoming by combining Ikeda with the secondary reference to Sawada (USP 5,471,430). However, Sawada is not appropriate to suggest any modification of Ikeda concerning the present claims since it does not pertain to an arrangement with a layered word line structure. Instead, Sawada provides only a single layer word line structure with word lines WL. As such, Sawada fails to teach anything regarding the claimed main word lines. Accordingly, Sawada lacks any teaching of how a layered word line structure could be combined with a layered data line structure. Therefore, it is respectfully submitted Sawada fails to teach or suggest the complete modification of Ikeda that would be necessary to meet the limitations of the rejected claims 1-3, 10-12 and 19.

With regard to this, attention is directed to the case of *In re Fine*, 5 USPQ 2d 1596 (Fed. Cir.). In the present invention, the sole reason for seeking to combine the teachings of Ikeda and Sawada to try to arrive at the claimed invention is set forth on page 5 as:

"Since Ikeda et al. and Sawada et al. are both from the same field of semiconductor, the purpose disclosed by Sawada et al. would have been recognized in the pertinent art of Ikeda et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to arrange sub-common data lines and main-common data lines in prefer directions because its only a design choice."

It is respectfully submitted that this logic set forth in the Office Action effectively amounts to stating that it would be "obvious to try" the invention defined in claims 1-3, 10-12 and 19 since the Ikeda and Sawada references are in the same field and it would only be a matter of design choice to particularly arrange the various layered word lines and layered data lines since it is "only a design choice." However, the case of *In re Fine* specifically states:

"But whether a particular combination might be "obvious to try" is not a legitimate test of patentability." 5 USPQ 2d @ 1599

The *In re Fine* case goes on to state:

And "teachings of references can be combined only if there is some suggestion or incentive to do so." Here, the prior art contains none. Instead, the Examiner relies on hindsight in reaching his obviousness determination... One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." 5 USPQ 2d @ 1599

With regard to the matter of "design choice", particular attention is drawn to the case of *In re Lee*, 61 USPQ 2d 1430. As stated there:

"This factual question of motivation as material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been lead to this combination of references, simply to use that which the inventor taught against its teacher.

It is respectfully submitted that this is exactly what is being done in the present Office Action since, clearly nothing in Sawada would motivate the complete modification of Ikeda which would be necessary to meet the present claims since Sawada clearly cannot give any suggestion for modifying a structure containing both layered word

line structure and layered data line structure. The reason for this, as noted above, is that Sawada does not contain a layered word line structure. Accordingly, the only motivation for the actual rearrangement, including both a main word lines and sub-word lines, comes from the Applicants' own teachings. As noted in both the *In re* Final case and the *In re* Lee case, the use of Applicants' own teachings against the Applicant is, clearly, improper. For these reasons, reconsideration and allowance of claims 1-3, 10-12 and 19 over the cited prior art to Ikeda and Sawada is earnestly solicited.


If the Examiner believes that there are any other points which may be clarified or otherwise disposed of either by telephone discussion or by personal interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 501.34214R00), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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